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(71) Applicant (for all designated States except US): POSTINI CORPORATION [US/US]; 633 Veterans Blvd, Suite C, Redwood City, CA 94063 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): IRLAM, Gordon Raymond [GB/US]; 326 A Street, Redwood City, CA Published: — with international search report

(74) Agent: KREBS, Robert, E.; Burns, Doane, Swecker & Mathis, LLP, P.O Box 1404, Alexandria, VA 22313 (US).

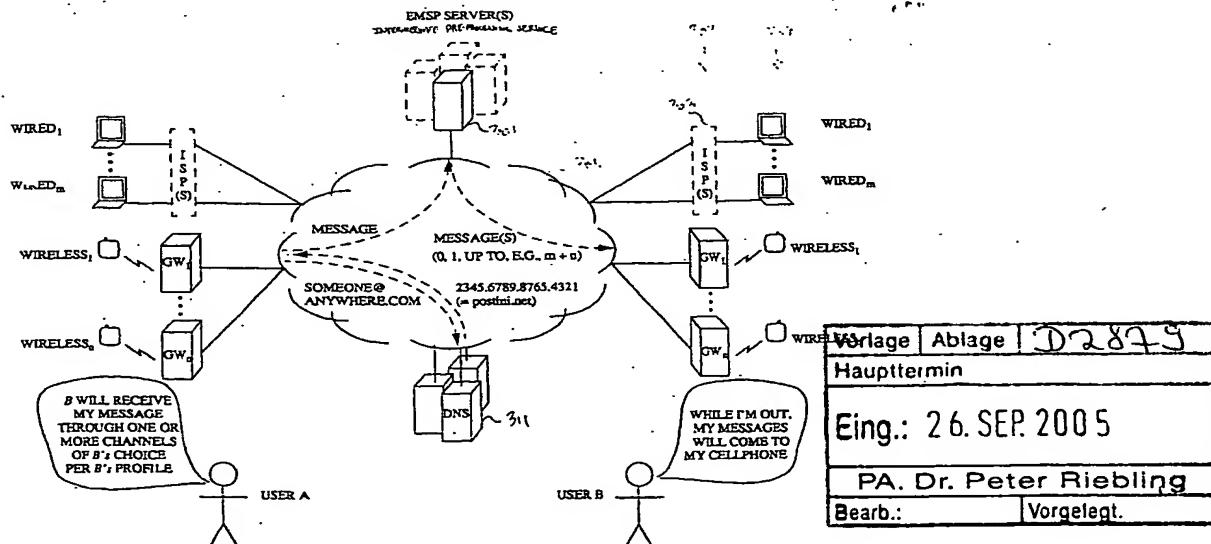
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(54) Title: VALUE-ADDED ELECTRONIC MESSAGING SERVICES AND TRANSPARENT IMPLEMENTATION THEREOF USING INTERMEDIATE SERVER

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(57) Abstract: The present invention provides for a centralized, preprocessing electronic messaging solution that performs value-added tasks to electronic messages on behalf of the ISP or the end user (USER A), before these messages are delivered to the destination email server (DNS). The service can detect and detain damaging or unwanted messages, such as spam, viruses or other junk email messages, and route electronic messages from various sources covering a variety of topics to wired (WIRED) and wireless (WIRELESS) destinations, apart from the intended recipient email address, in various formats.



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**VALUE-ADDED ELECTRONIC MESSAGING SERVICES  
AND TRANSPARENT IMPLEMENTATION THEREOF  
USING INTERMEDIATE SERVER  
BACKGROUND OF THE INVENTION**

5      **Field of the Invention**

The present invention relates to electronic messaging such as email.

**State of the Art**

The adoption of email has occurred at an unprecedented pace. Of routine computer users, most now have or soon will have an email address. Many have 10 more than one email address, e.g., one for work and another for home. Email offers unparalleled convenience of written communication.

Besides ubiquitous email, another powerful trend is wireless access via a variety of wireless devices, e.g., cell phones, pagers, hand-held computers such as Palm and Windows CE devices, etc. Service-specific email gateways allow an 15 email message to be sent from the Internet to a particular wireless device. In the case of a Sprint PCS phone, for example, an email may be addressed to #@sprintpcs.com, where # represents the telephone number of the phone. Despite this capability, wireless messaging is greatly complicated by the fact that a person may have multiple wireless devices, and that at a given time, the sender has no 20 way of knowing the person's whereabouts or preferred method of message delivery at that time, let alone the address specifics pertaining to each gateway.

For example, the person may be in the office, in which case desktop email would be preferred, on the road staying at a hotel, in which case cell phone email might be preferred, or on the road away from a major metropolitan area, in which 25 case pager email (which has nationwide coverage in the US) might be preferred. This situation, referred to herein as the "multiple email box conundrum," is illustrated in Figure 1. An intended recipient B of an electronic message may

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receive electronic messages through one or more wired devices and/or one or more wireless devices, which may include some or all of the following: an ISP mail account, a free web mail account, a PDA mail account, a cell phone subscription, and a pager subscription. In each instance, email is delivered  
5 through a different server or gateway connected to the Internet, i.e., a ISP mail server, a portal mail server, a PDA mail server, a cellular gateway and a paging gateway. A message originator A may, at various times, use some or all the devices mentioned to send an electronic message. In the multiple email box conundrum, the message originator needs to know which email address to use to reach the user. In turn, the recipient must monitor all accounts and devices to  
10 keep track of critical information.

Furthermore, in the case of a wireless network gateway, the wireless gateway will typically strip off any email attachments, usually without any notification to the user.

15 Note that, in Figure 1, wired devices may be stand-alone or LAN-based. In the case of stand-alone devices, connection to the Internet is typically dial-up access through an ISP. In the case of a LAN-based device, a server on the LAN may be connected to the Internet through an ISP or directly to the Internet without the involvement of an ISP.

20 Neither ISPs nor wireless providers are well-positioned to offer a complete solution to the electronic messaging problem. ISPs are primarily focused on new customer acquisition and often do not have enough users to attract wireless partners. In the case of wireless providers, users are generally unwilling to switch their primary email address. And wireless vendors are generally unable to  
25 integrate with existing email services.

With the widespread adoption of email, there has also occurred the proliferation of junk email, or "spam." Currently, of the hundreds of millions of email messages sent each day, about 30% of those messages may be expected to be

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junk email. Figure 2 illustrates "spamming" of the user of Figure 1. Various companies (e.g., Brightmail Inc. of San Francisco, CA) have addressed the problem of junk email by providing email filtering software that attempts to identify and discard junk email. Typically, such software resides on a destination 5 email server. Such a solution does not scale well; i.e., installing and maintaining email filtering software on email servers grows increasingly difficult as the number of email servers multiplies.

Because of the resources required to install and maintain an email server, various companies have emerged offering email outsourcing in which the email 10 server is provided by a third party outside the organization. Email outsourcing off-loads the responsibility for providing and maintaining email service without necessitating any change in domain or email addresses. Email is retrieved from an off-site email server provided and maintained by the email outsourcing company. One example of an email outsourcing company is United Messaging Inc. of 15 Malvern, PA. Despite such arrangements, the multiple email box conundrum and the junk email problems remain.

Accordingly, a need exists for a scalable, transparent solution to the junk email problem. Also, a need exists for a unified messaging solution, embracing wireless messaging, that addresses the foregoing drawbacks of the prior art.

20

## SUMMARY OF THE INVENTION

The present invention, generally speaking, provides for a unified electronic messaging solution in which individual, configurable user profiles are used to route and deliver electronic messages from various sources, wired and/or wireless, to various destinations, wired and/or wireless, in various formats. For example, 25 the subject line of an electronic message may be sent to a user's pager, while an abbreviated version of the message is sent to the user's PDA having wireless-connectivity and the full electronic message is sent to the user's work.

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The unified electronic messaging solution may be deployed by ISPs within the existing Internet infrastructure. More preferably, scalability is greatly enhanced by providing (e.g., as part of a Network Operations Center, or NOC), an intermediate server that precedes a destination server on an electronic message delivery path. The electronic messaging solution allows provides for performance of a variety of value-added services, such as junk email filtering, recipient-directed message routing, including wireless delivery to any of a variety of wireless devices, rich media services such as attachment preview, etc. In the latter embodiment, the operator of the intermediate server therefore functions as an Electronic Messaging Service Provider (EMSP). Preferably, the intermediate server is inserted into the electronic message delivery path by changing a DNS (Domain Name Server) entry pertaining to the destination email server. As a result, no new hardware or software is required for users or ISPs. Because a single NOC including the intermediate server can serve far-flung geographic regions, scalability is achieved. The ease of inserting the intermediate server into the electronic message delivery path enables self enrollment by ISPs (Internet Service Providers) in a cooperative services program (that may involve revenue sharing), enabling effective penetration to second-tier ISPs, which are extremely numerous. In one embodiment, junk email, instead of being deleted without notification, is posted to a user-accessible web site where it is kept for a period of time. A user therefore has an opportunity to verify that the diverted messages are indeed junk email. Through the web site, a user may create a profile governing the forwarding of messages. Preferably, the web site is accessible both from the desktop and from the wireless devices themselves, enabling real-time update of the profile by the user or by agent software.

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#### BRIEF DESCRIPTION OF THE DRAWING

The present invention may be further understood from the following description in conjunction with the appended drawing. In the drawing:

5       Figure 1 is a diagram illustrating the multiple email box conundrum;  
Figure 2 is a diagram illustrating "spamming" of the user of Figure 1;

Figure 3 is a diagram of one embodiment of a unified message delivery system;

Figure 4 is a block diagram of one embodiment of the intermediate server(s) of Figure 3;

10      Figure 5A is a more detailed block diagram of one embodiment of the server of Figure 4;

Figure 5B is an alternate diagram of one embodiment of the server of Figure 4;

15      Figure 6 is a diagram of an exemplary embodiment showing a configuration screen display that may be used to configure the unified message delivery system; and

Figure 7 is a diagram emphasizing end user configuration and mail processing.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

20      Referring now to Figure 3, a diagram is shown of one embodiment of a unified message delivery system. The system provides for a service that allows the user to define where messages are routed across multiple devices, which portions of messages are routed to which devices, etc. The system allows for ready integration with an end-user's primary email service and is end-user  
25      configurable.

As compared to Figure 1, in which the electronic message delivery path proceeds through the Internet directly to one of a multiplicity of servers or gateways, in the system of Figure 3, an intermediate pre-processing service 301 is

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inserted into the message delivery path. The intermediate pre-processing service 301 preferably comprises an NOC including an array of mail handling machines, a database, a file store, web servers and utility machines. The intermediate pre-processing service 301 is in turn connected to the various servers and gateways of 5 Figure 1, including, for example, a user's primary ISP 303, if any. Such connection typically also occurs through the Internet (305). The collection of servers and gateways 307 provide email access for a variety of wired and wireless client devices 309, which may include, for example, a main email system (typically a home or office desktop computer), a free web-based mail system (e.g., 10 Yahoo or the like), a PDA (e.g., Palm VII), a cell phone and a pager. A typical user will use two or more of the foregoing electronic message delivery options and some users will use most or all of these options.

By established user-defined preferences, the user is able to control the flow 15 of messages to the various devices. Preferences are configured using web browser software to create or modify a user profile. User profiles are stored in a relational database (not shown) accessible to the intermediate pre-processing service. Note that end-user configuration may occur via any web-enabled device, either wired or wireless. Wireless web access may be supported using technologies presently-known in the art such as Palm's "web clipping" technologies, the 20 UPLink server suite of Phone.com of Redwood City, CA, Wireless Application Protocol (WAP) -enabled cellphones, etc.

To take a concrete example, there may be three email messages delivered 25 to the intermediate pre-processing service 301 for a particular user, an urgent message, a message from the user's boss, and a message from the user's friend. In this example, the email from the user's friend might be delivered to the user's main email system and to the user's free web mail system. The email from the user's boss might be delivered to the user's PDA. The urgent message might be delivered to the user's cell phone and to the user's pager.

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Figure 3 illustrates the different manner of operation of the message delivery system of Figure 3, including the intermediate pre-processing service 301, as compared to the conventional electronic message delivery path of Figure 1.

Say, for example, that user A, (e.g., Sue@standford.edu) wishes to send a email  
5 to user B (e.g., Tom@aol.com). Sue uses an email program to create, address and send the email. The mail is sent from Sue's computer to the local mail server for Sue's computer, which may reside on Sue's local area network or at an ISP. The local mail server queries a Domain Name Server (DNS) 311 to obtain the IP address for Tom@aol.com. Normally, the local mail server uses the IP address returned by DNS to send the email to the destination email server for Tom's computer, (e.g., mail.aol.com). The email is then delivered to Tom's computer.  
10

In one embodiment of the present system, the normal electronic message delivery path is broken and the intermediate pre-processing service 301 is inserted into the electronic message delivery path. This result is easily accomplished by  
15 modifying the appropriate DNS record (such as the MX--mail exchange--record, for example) to point to the intermediate pre-processing service 301 instead of the destination email server (e.g., 303). In this manner, the electronic message delivery path is modified such that the intermediate pre-processing service 301 handles all of the electronic messages that would otherwise have been handled by  
20 the destination email server.

Given the ease with which the intermediate pre-processing service may be inserted into the message delivery path, the enrollment of Internet Service Providers (ISPs) in cooperative messaging service agreements with the operator of the intermediate pre-processing service (Electronic Messaging Service Provider, or  
25 EMSP) may be automated to a great extent. For example, the ISP may visit the web site of EMSP, indicate assent to terms and conditions, and specify billing information and a service start date.

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Prior to the service start date, the ISP advises subscribers and arranges for its DNS entries to be modified appropriately as of the service start date.

Prior to the start date, users are advised by email of additional available message center services. Each user is assigned a user name and password in order 5 to access a message center web site. When the user first visits the message center web site, the user creates a profile that will be used thereafter to select and configure value-added service (e.g., junk email filtering and virus checking) and to control message delivery. Within the profile, the user may designate a particular email server as the user's main email system. Profiles place users in control of 10 their mail experience. Alternatively, A service provider can create a default profile of services and the user can visit the message center web site to modify the default configuration.

When the intermediate pre-processing service 301 receives an email, it looks up the addressee's user profile. The intermediate pre-processing service then 15 performs value-added processing of the message. For example, the intermediate pre-processing service may apply user-selected junk email filters and user-selected virus checkers for checking attachments. Junk-email blocking may be based on both content and IP routing information. "Clean" email is delivered to the user's mail server as normal. Suspect messages, instead of being deleted without 20 notification to the user, is held in a quarantine area, and the user is notified. The user can then, if desired, download messages flagged as suspect by accessing the message center web site.

Alternatively or in addition, the intermediate pre-processing service may deliver to the message to one or more wireless devices in accordance with the user 25 profile, e.g., by forwarding the message to one or more servers or gateways 307 the addresses of which have been specified by the user in the user's profile. Prior to forwarding the message to a server or gateway, the intermediate pre-processing

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service 301 may perform any necessary reformatting to meet the requirements of a particular recipient device.

In general, a user may configure an arbitrary number of communication "channels," each channel including a destination and, optionally, one or more message modification procedures including filters, reformatters, etc. that may affect message presentation, be required for message transport, etc.

The intermediate pre-processing service 301 may perform myriad other types of services. One example of such services involves certain attachments, e.g., rich media items such as MP3, JPEG, MPEG, etc. Such items are notorious "bandwidth hogs" and can easily clog up the message delivery system. Rather than simply delete such items, however, the intermediate pre-processing service 301 allows such items to be intelligently managed. One option is to treat rich media in like manner as junk email. That is, rich media items, instead of being delivered with the email messages to which they are attached, are delivered to the message center web site, and the user is notified. The user can then view/play or ignore the items as desired.

Another option is to produce replacement attachments, i.e., "thumbnail" versions of the rich media items. An option may be provided for the original full attachment(s) to be delivered to the user with a subsequent system-generated email message. For example, a link may be embedded in the thumbnail along with appropriate text advising the user to click on the link to receive the full attachment. In one embodiment, clicking on the link takes the user to a complete, high resolution image residing in the user's personal message center.

Note that the functionality of the intermediate pre-processing service may be implemented at ISPs rather than at a central NOC without any sacrifice of functionality or any noticeable effect on the end user. In this instance, DNS information remains unchanged. In this scenario, however, ISPs must be persuaded to invest in additional hardware and/or software.

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Referring to Figure 4, a generalized block diagram is shown of one embodiment of the intermediate pre-processing service 301 of Figure 3. One or more messaging servers 401, e.g., email servers, are provided, realizing a receive and store function 403 and a forward function 405. The forward function incorporates various value-added services such as filtering, formatting, routing, multicasting, etc. Due to the multicasting feature of the forward block 405, a single incoming message may result in the forwarding of some greater number of outgoing messages.

The forward block 405 communicates with storage 407, which may include one or more relational databases or file servers. Storage 407 includes profile and local DNS information 409 for each subscriber, as well as a "quarantine" area 411 for storing filtered messages, e.g., messages determined to be unfit to forward. Subscribers are provided access to storage 407 through one or more web servers 413, allowing subscribers to configure their profiles, view filtered messages, etc.

Referring to Figure 5A, a more detailed block diagram is shown of the intermediate pre-processing service 301 in accordance with an exemplary embodiment of the invention. Multiple hosts are defined on both the inbound mail server and the outbound mail server. Each host runs a copy of an appropriate mail program such as FreeBSD Qmail. In one alternate embodiment, a machine or a cluster of machines operates as a mail-receiving machine and a mail-delivering machine. This machine will accept a connection from a sending SMTP server and begin receiving data. Simultaneously, the machine will begin receiving the message data, querying the database for a specific user configuration, processing messages based on configuration, opening a connection to a receiving SMTP server, and delivering it. Standard mail server software is not required for this alternate embodiment.

Incoming mail is routed to an available host by a load balancer 505, or load-sharing switch/router, of a type commonly available from Cisco and other

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network equipment manufacturers. The server cluster 501 can include a server running a relational database management system such as Oracle, for example. The host queries the database to identify the user and user preferences. The host then processes the message as specified in the user profile. For spam checking,  
5 each host runs a copy of an appropriate spam filter. Virus checking can be done using a virus scanning application such as that available from Trend.

Good emails are addressed with one or more addresses in accordance with information specified in the user profile and sent to the outbound mail server cluster to be sent out. To deliver a message addressed to user@isp.com, our  
10 intermediate preprocessing lookup service looks up user@postini-mail.isp.com and delivers. This allows the ISP to update the final delivery location without requiring the intermediate preprocessing service to make any changes. The email is sent to the ISP mail server 511 and possibly to other servers or gateways in accordance with the user profile.

Bad emails are saved "in quarantine" on a message center web site, and a notification email is sent to the user. In the illustrated embodiment, the inbound mail server cluster is connected to a file store 521. The file store is in turn connected to a web server 523. When a user logs on to the web server, a web page is displayed that includes a link for displaying a summary of quarantined  
20 messages and/or attachments. By clicking on a selected item, the user is able to view the item and, depending on the attachment type, may be able to view the attachment. If the user so chooses, the user may be allowed to download an item suspected to contain a virus after the user has been given appropriate warning.

Figure 5B shows an alternate diagram of a system of the present invention.  
25 Figure 6 shows an example of a web form screen display that may be filled out by the user to configure message delivery for that user and subsequently modified to modify the configuration. In the example shown, a subsequent screen display is shown after one of the mail filter items is selected.

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In accordance with a further feature of the invention, devices may be provided with a background software routine that periodically notifies the messaging system, automatically, of the time of last user input to the device. This information may be used to dynamically route messages to increase the likelihood 5 of early receipt by the user. For example, a user may specify messages to normally be delivered to the user's cellphone between the hours of 8-9AM, 12-1PM and 6-7PM, and to the user's work between the hours of 9-12AM and 1-6PM, in accordance with the user's normal routine. On a particular afternoon, however, the user may be away from the office and may have used his/her 10 cellphone to receive or make one or more calls, or to access information, etc. If the user has selected a "find me" configuration option, then this usage information may be used to intelligently route messages to the user's cellphone, for example.

The value-added electronic messaging system detailed in the foregoing description provides an elegant solution to the multiple email box conundrum. 15 User-centric in design, the system is end-user configurable and uses an intuitive web metaphor. Based on a scalable architecture, the system works with existing email accounts and does not require hardware or software integration.

Figure 7 is a diagram of one embodiment of the system of the present invention emphasizing end user configuration and mail processing.

It will be appreciated by those of ordinary skill in the art that the invention 20 can be embodied in other specific forms without departing from the spirit or essential character thereof. The presently disclosed embodiments are therefore considered in all respects to be illustrative and not restrictive. The scope of the invention is indicated by the appended claims rather than the foregoing description, 25 and all changes which come within the meaning and range of equivalents thereof are intended to be embraced therein.

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What is claimed is:

1. A method of providing electronic messaging services, comprising:  
storing a user profile;  
receiving an electronic message addressed to the user; and  
based on the user's profile, performing value-added processing of  
the electronic message.
2. The method of Claim 1, wherein value-added processing comprises sending to a user less than all of the electronic message.
3. The method of Claim 1, wherein value-added processing comprises  
10 multicasting at least a portion of the electronic message to destinations specified in  
the profile.
4. The method of Claim 1, wherein different portions or versions of  
the electronic message are delivered to different destinations.
5. The method of Claim 1, wherein the user profile is end-user  
15 configurable.
6. The method of Claim 4, wherein the destinations include at least  
one wireless device.
7. The method of Claim 6, wherein the destinations include multiple  
wireless devices.

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8. The method of Claim 1, wherein the value-added processing includes at least one of junk email filtering and virus detection.

9. The method of Claim 1, wherein the value-added processing includes delivering at least some of the electronic messages to one or more  
5 wireless network gateways.

10. The method of Claim 1, wherein the value-added processing includes:

identifying a media part of an electronic message; and  
substituting different electronic content for the media part.

10 11. The method of Claim 1, further comprising:

causing an intermediate pre-processing service to be inserted into an electronic message delivery path such that electronic messages addressed to a destination email server or gateway are handled by the intermediate pre-processing service;

15 the intermediate pre-processing service performing value-added processing of at least some of the electronic messages; and

delivering at least some of the electronic messages to the destination email server or gateway, or delivering at least some of the electronic messages to a destination other than the original address, based on configurations as defined by an end user.  
20

12. The method of Claim 11, wherein causing the intermediate pre-processing service to be inserted comprises modifying a DNS entry pertaining to the destination email server or gateway.

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13. The method of Claim 12, further comprising displaying self-enrollment information on a web page, wherein an operator or agent of the destination email server or gateway causes the intermediate pre-processing service to be inserted into the electronic message delivery path.

5 14. The method of Claim 11, wherein the value-added processing includes at least one of junk email filtering and virus detection.

15. The method of Claim 14, further comprising:  
identifying suspect email messages; and  
storing but not delivering the suspect email messages.

10 16. The method of Claim 15, further comprising a user accessing a server to inspect suspect email messages addressed to that user.

17. The method of Claim 11, wherein the value-added processing includes delivering at least some of the electronic messages to one or more wireless network gateways.

15 18. The method of Claim 17, further comprising, prior to delivering an electronic message to a wireless network gateway, performing modification of the electronic message.

19 20 The method of Claim 11, wherein the value-added processing includes:  
identifying a media part of an electronic message; and  
substituting different electronic content for the media part.

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20. The method of Claim 13, wherein the different electronic content is derived from the media part.

21. The method of Claim 20, wherein the different electronic content is descriptive of the media part.

5 22. The method of Claim 21, further comprising, in response to a user action, delivering at least a portion of the media part.

23. An electronic message delivery system, comprising:  
means for storing a user profile;  
means for receiving an electronic message addressed to the user;  
10 and  
means for, based on the user's profile, performing value-added processing of the electronic message.

24. The apparatus of Claim 23, wherein value-added processing comprises sending less than all of the electronic message.

15 25. The apparatus of Claim 23, wherein value-added processing comprises multicasting at least a portion of the electronic message to destinations specified in the profile.

26. The apparatus of Claim 23, wherein different portions or versions of the electronic message are delivered to different destinations.

20 27. The apparatus of Claim 23, wherein the stored user profile is end-user configurable.

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28. The apparatus of Claim 26, wherein the destinations include at least one wireless device.

29. The method of Claim 28, wherein the destinations include multiple wireless devices.

5       30. The apparatus of Claim 23, comprising:  
          a destination email server or gateway;  
          an intermediate pre-processing service; and  
          a domain name server that, in response to a lookup on an electronic message address belonging to the destination email server or gateway,  
10      returns an address of the intermediate pre-processing service;  
          wherein the intermediate pre-processing service performs value-added processing of at least some of the electronic messages addressed to the destination email server or gateway, and delivers at least some of the electronic messages to the destination email server or gateway.

15       31. The apparatus of Claim 24, wherein the value-added processing includes at least one of junk email filtering and virus detection.

32. The apparatus of Claim 23, further comprising means for delivering at least some of the electronic messages to one or more wireless network gateways.

20       33. The apparatus of Claim 30, wherein the value-added processing includes at least one of junk email filtering and virus detection.

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34. The apparatus of Claim 31, further comprising:  
means for identifying suspected junk email messages; and  
means for storing the junk email messages.
35. The apparatus of Claim 23, further comprising means for delivering  
5 at least some of the electronic messages to one or more wireless network  
gateways.
36. The apparatus of Claim 23, further comprising means for  
identifying a media part of an electronic message and substituting different  
electronic content for the media part.
- 10 37. The apparatus of Claim 23, further comprising means for, prior to  
delivering an electronic message to a wireless network gateway, performing  
modification of the electronic message.
- 15 38. The apparatus of Claim 30, further comprising means for  
identifying a media part of an electronic message and substituting different  
electronic content for the media part.
39. The apparatus of Claim 37, wherein the different electronic content  
is derived from the media part.
40. The apparatus of Claim 39, wherein the different electronic content  
is descriptive of the media part.
- 20 41. The apparatus of Claim 40, further comprising means for, in  
response to a user action, delivering at least a portion of the media part.

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42. A server for performing value-added processing of electronic messages, comprising:

means for receiving an electronic message addressed to a user;

means for retrieving a profile for said user; and

5 means for, in accordance with said profile, performing value-added processing of the electronic message.

43. The apparatus of Claim 42, further comprising:

means for identifying suspect email messages; and

means for storing the suspect email messages.

10 44. The apparatus of Claim 42, further comprising means for delivering at least some of the electronic messages to one or more wireless network gateways.

15 45. The apparatus of Claim 42, further comprising means for, prior to delivering an electronic message to a wireless network gateway, performing modification of the electronic message.

46. The apparatus of Claim 42, further comprising means for identifying a media part of an electronic message and substituting different electronic content for the media part.

20 47. The apparatus of Claim 46, further comprising means for, in response to a user action, delivering at least a portion of the media part.

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48. A method of distributing electronic messages, comprising:  
receiving electronic messages at a server;  
based on an address of the message, retrieving a stored user profile;  
and

5 based on the stored user profile, forwarding at least a portion of the  
electronic message to one or more selected destinations from among  
multiple destinations.

49. The method of Claim 48, wherein the selected destination is a  
wireless device.

10 50. The method of Claim 48, further comprising the user creating or  
updating the profile using web browser software.

51. The method of Claim 50, wherein the web browser software runs  
on a wireless device.

15 52. The method of Claim 48, wherein the server is an intermediate pre-  
processing service, and the multiple destinations include a destination email server  
or gateway.

20 53. The method of Claim 52, wherein the intermediate pre-processing  
service is inserted into an electronic message delivery path of the destination email  
server or gateway by modifying a DNS entry pertaining to the destination email  
server or gateway.

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54. The method of Claim 53, wherein the intermediate pre-processing service performs value-added processing of at least some of the electronic messages addressed to the destination email server or gateway, and delivers at least some of the electronic messages to the destination email server or gateway.

5        55. An electronic message delivery system, comprising:  
            a server;  
            a database accessible to the server having stored therein for each of multiple users a profile specifying multiple destinations for electronic messages addressed to that user and under what circumstances an electronic  
10        message is to be forwarded to a particular destination; and  
            software allowing a user to create or change the user's profile using web browser software.

56. The apparatus of Claim 55, wherein the web browser software runs on a wireless device.

15        57. The apparatus of Claim 55, wherein the destinations include a wireless device.

58. The apparatus of Claim 55, wherein said server is an intermediate server, further comprising:

20        a destination email server or gateway; and  
            a domain name server that, in response to a lookup on an electronic message address belonging to the destination email server or gateway, returns an address of the intermediate server;  
            wherein the intermediate pre-processing service performs value-added processing of at least some of the electronic messages

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addressed to the destination email server or gateway, and delivers at least some of the electronic messages to the destination email server or gateway.

59. The apparatus of Claim 58, wherein the value-added processing includes at least one of junk email filtering and virus detection.

60. A computer-readable medium containing instructions for causing a computer system to perform steps comprising:  
receiving an electronic message addressed to a user;  
retrieving a stored user profile; and  
based on the user's profile, performing value-added processing of  
the electronic message, including distributing the electronic message  
through one or more user-specified channels.

10 61. The apparatus of Claim 58, wherein the stored user profile is end-user configurable.

15 62. The apparatus of Claim 60, wherein each channel comprises a user-configurable destination.

63. The apparatus of Claim 62, wherein at least some channels comprise a user-configurable message modification operation.

Fig. 1 (Prior Art)

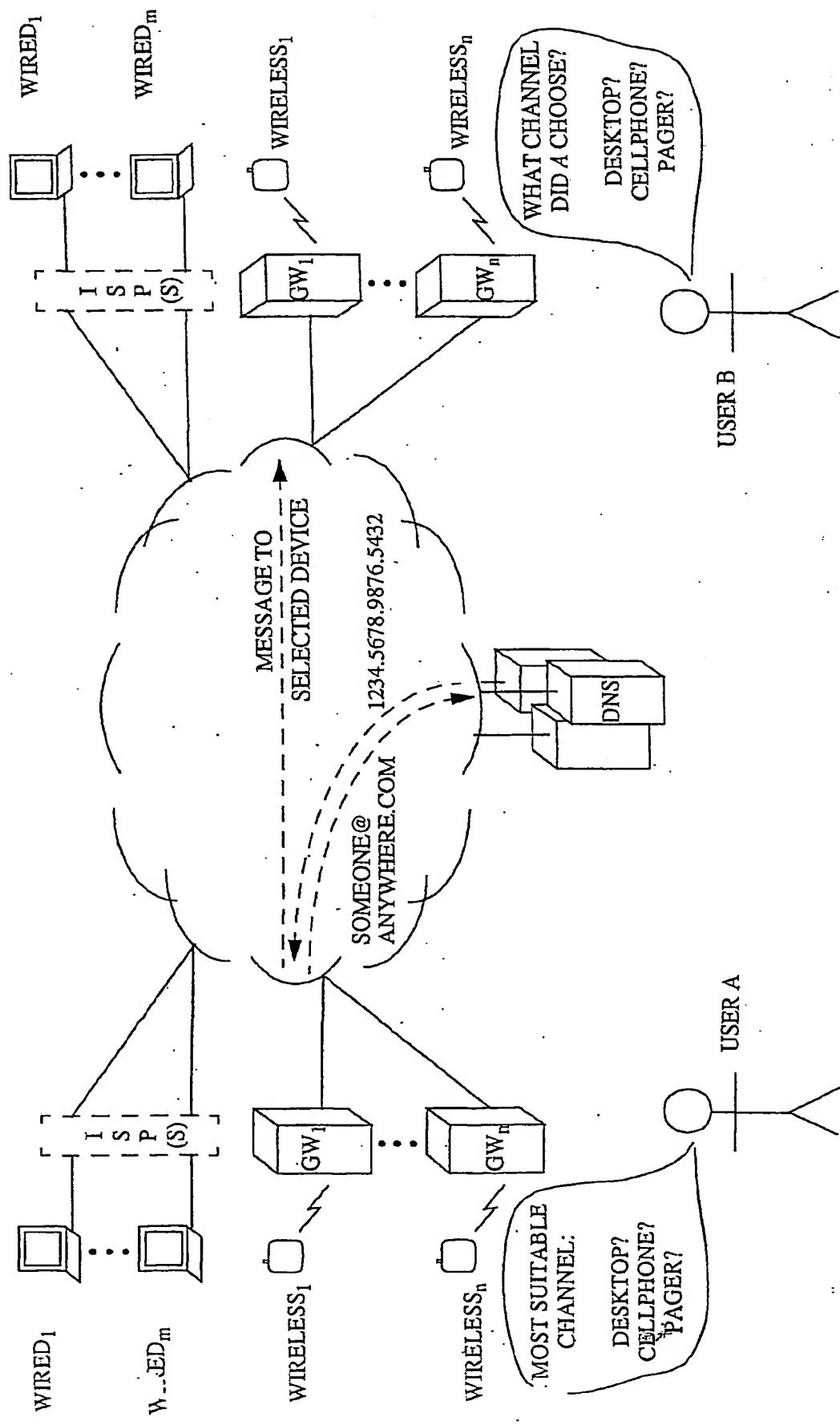
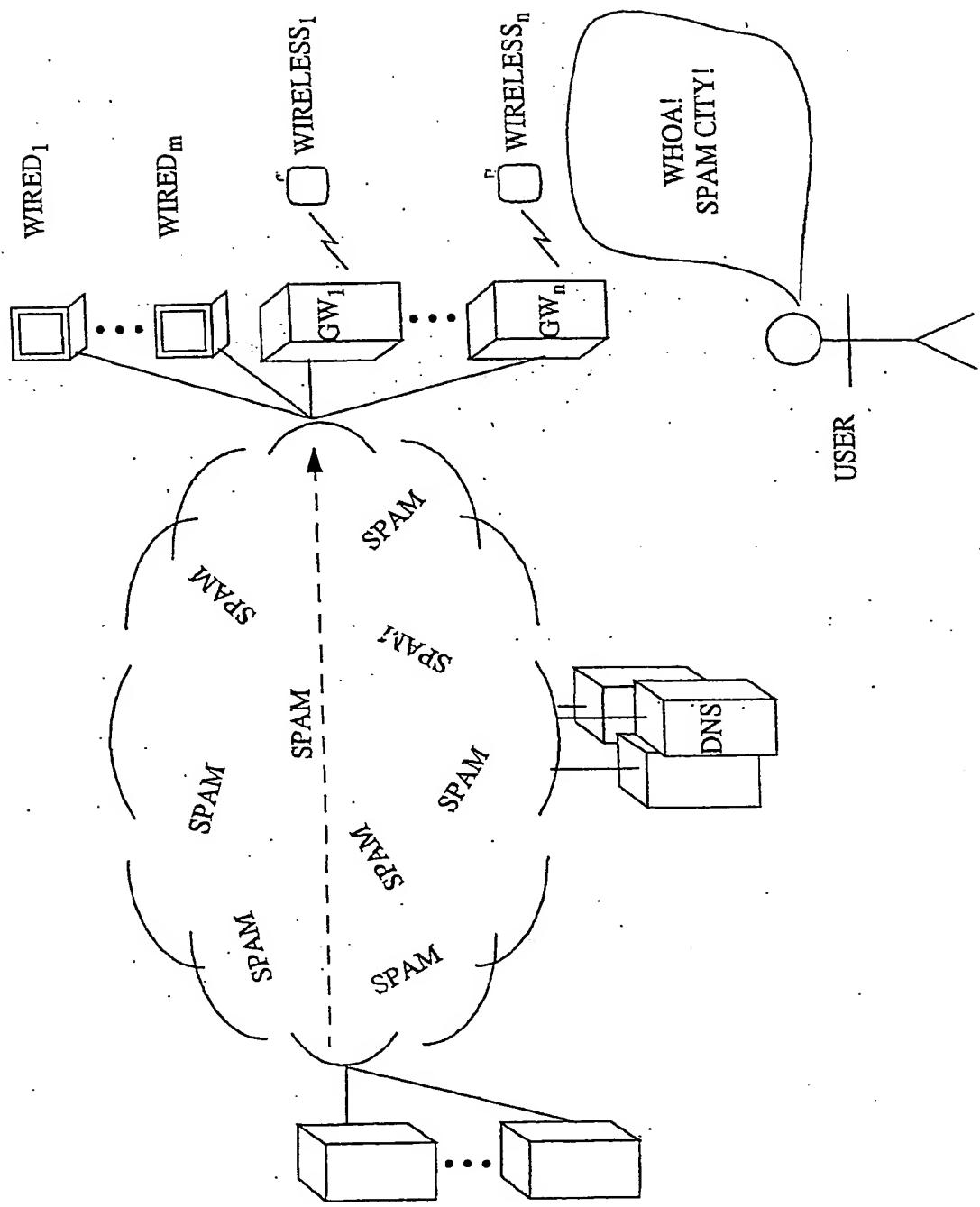
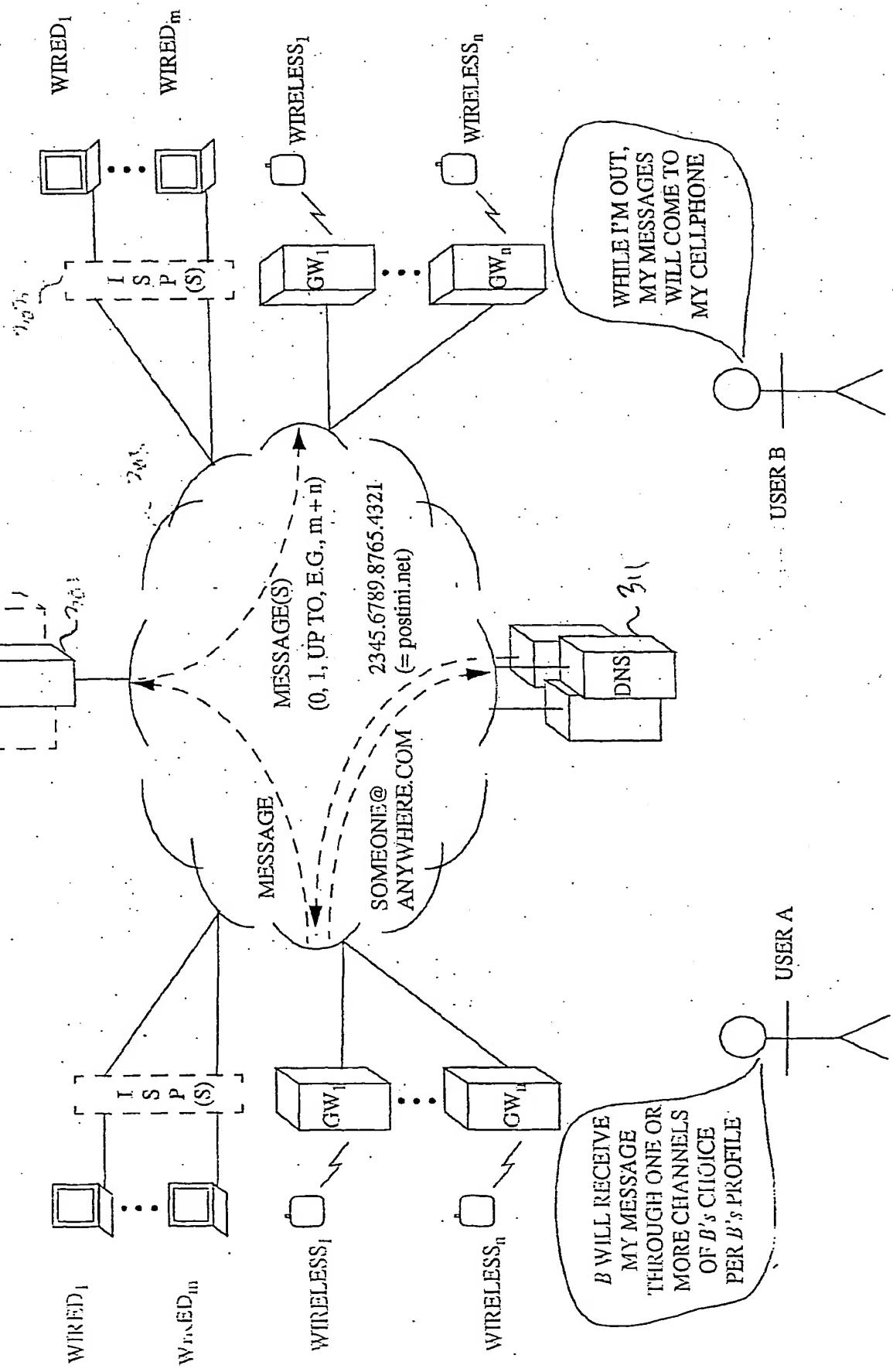


Fig. 2 (Prior Art)



**EMSP SERVER(S)**  
INTERVENING PRE-PROCESSING SERVICE

Fig. 3



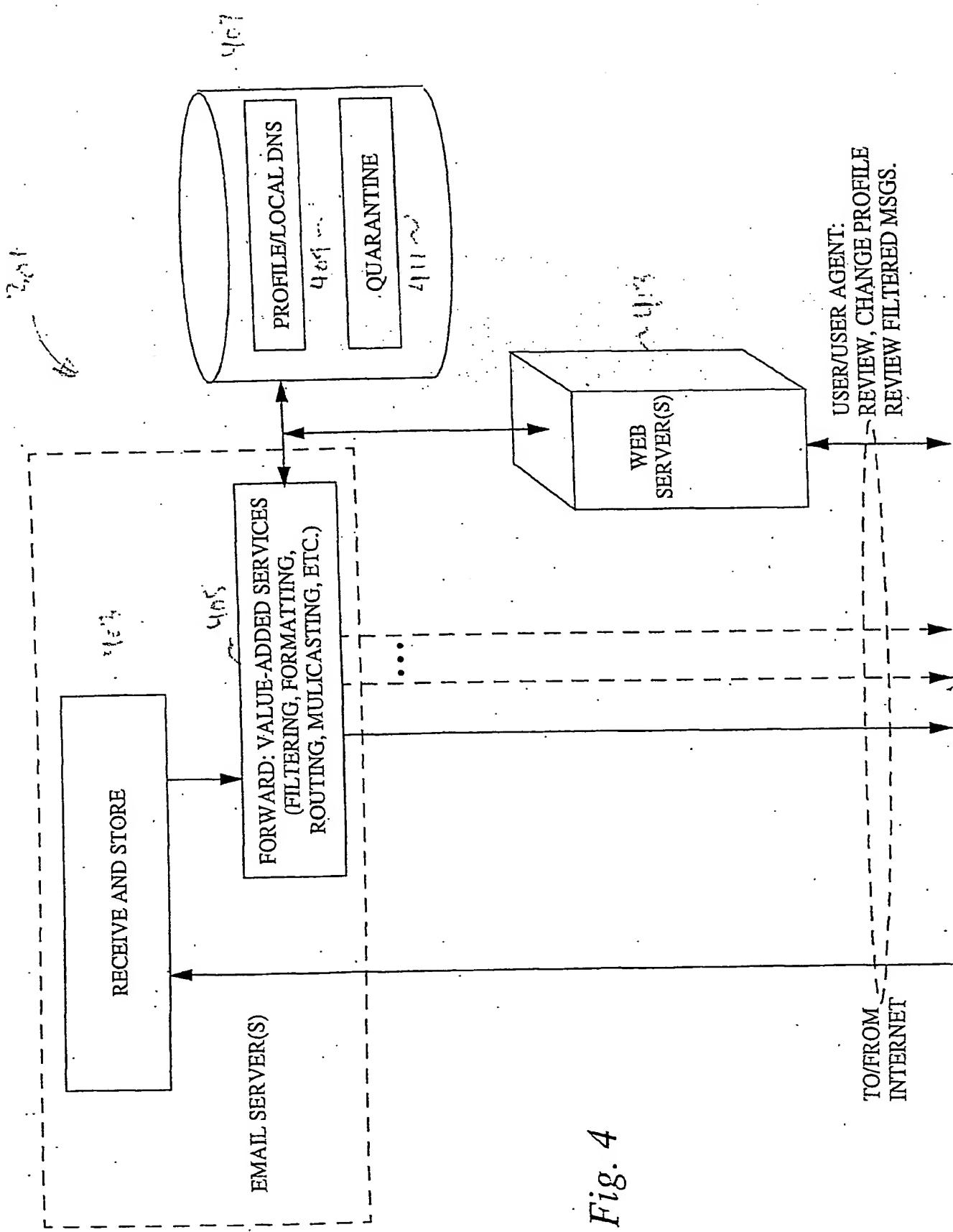


Fig. 4

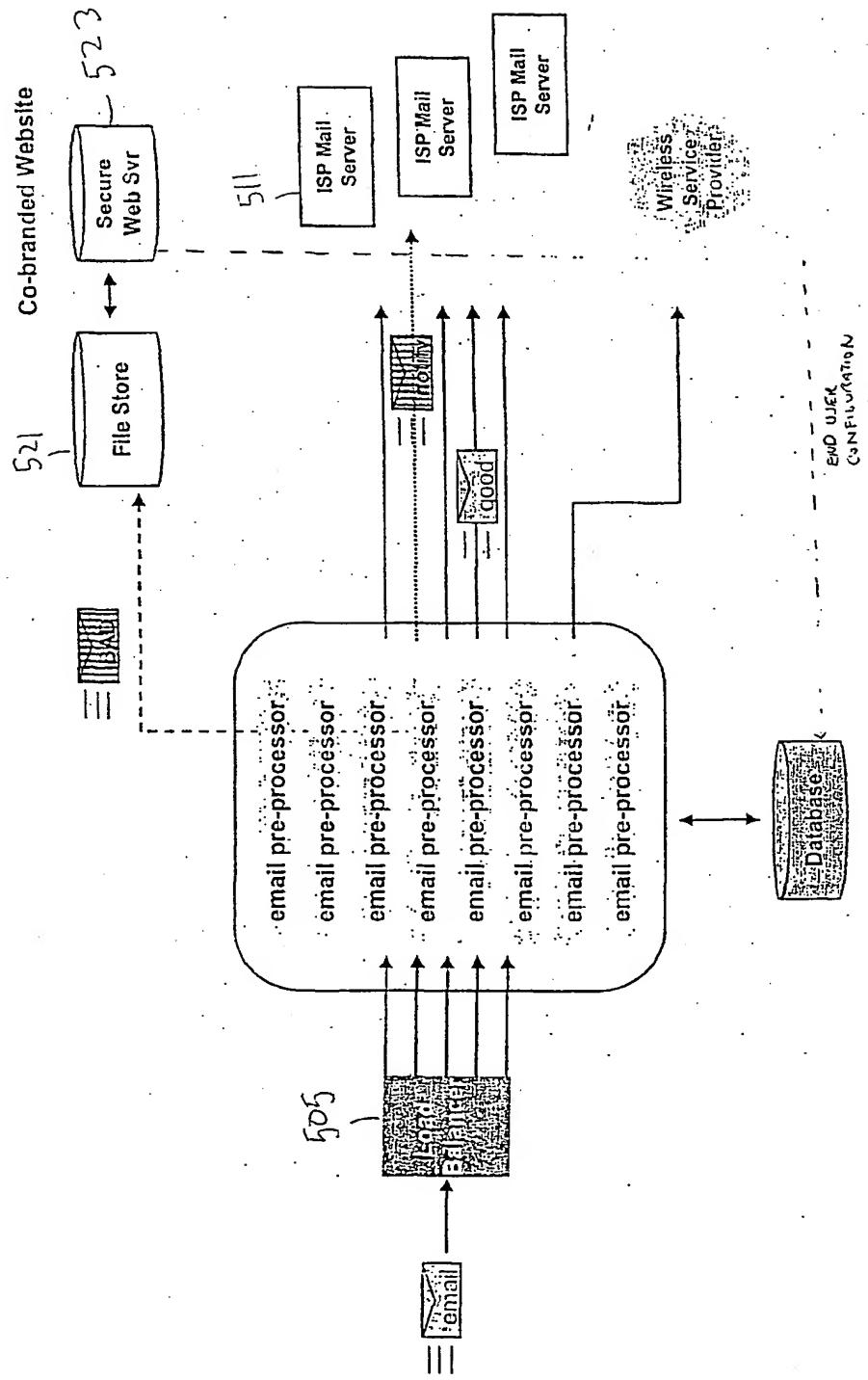


FIGURE 5A

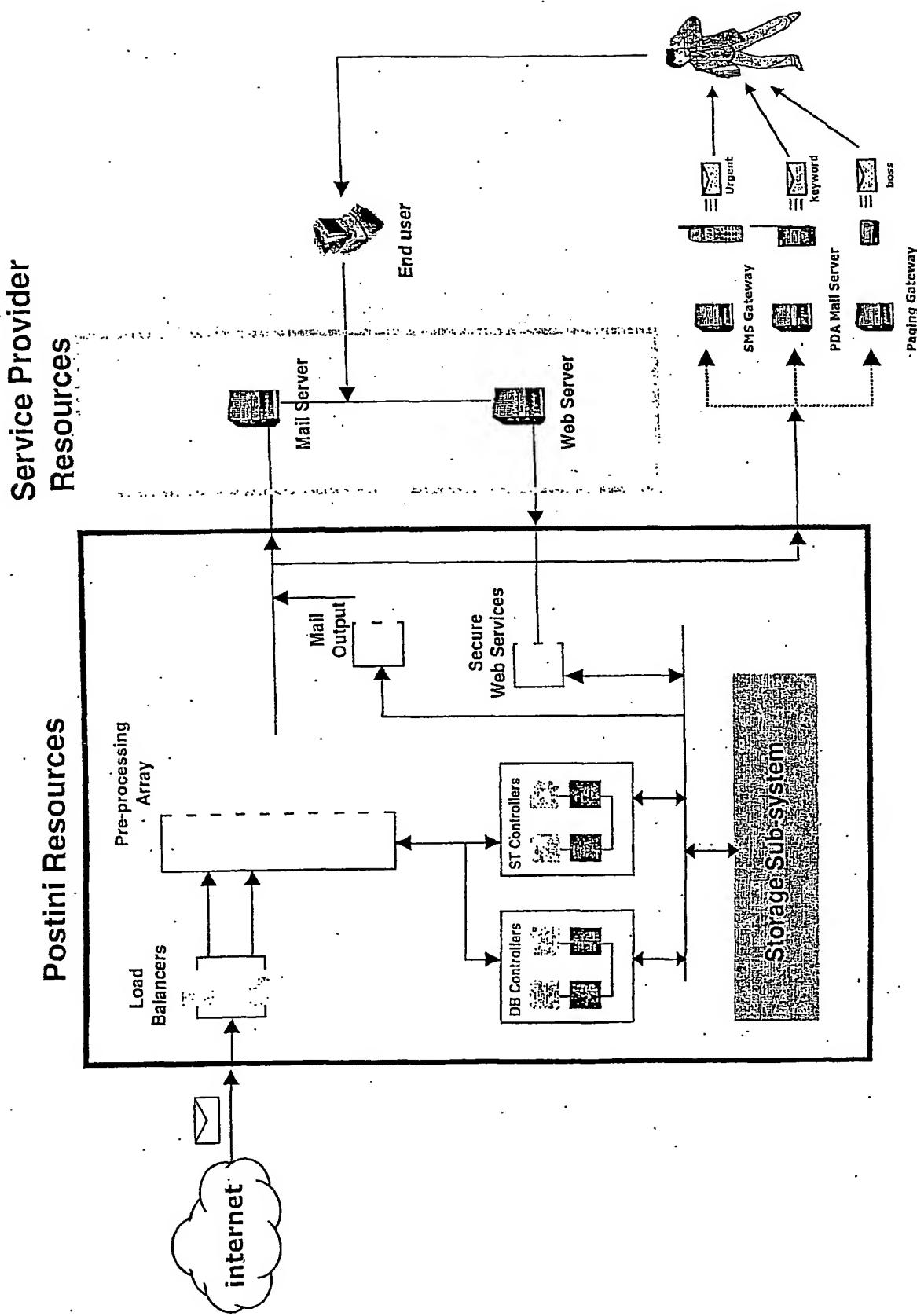
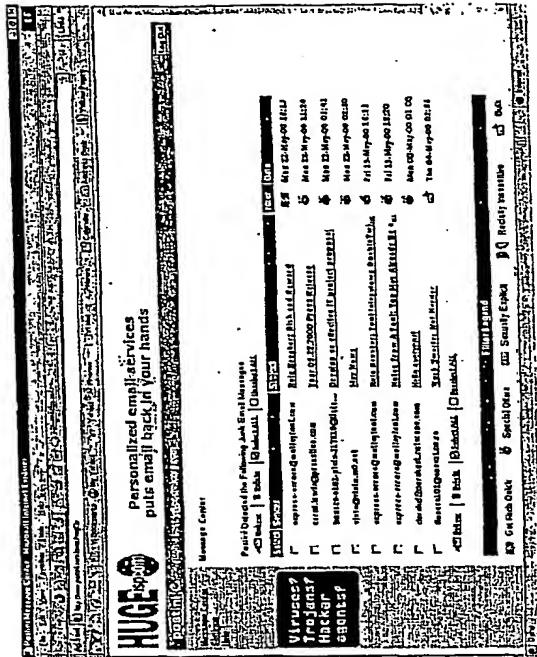
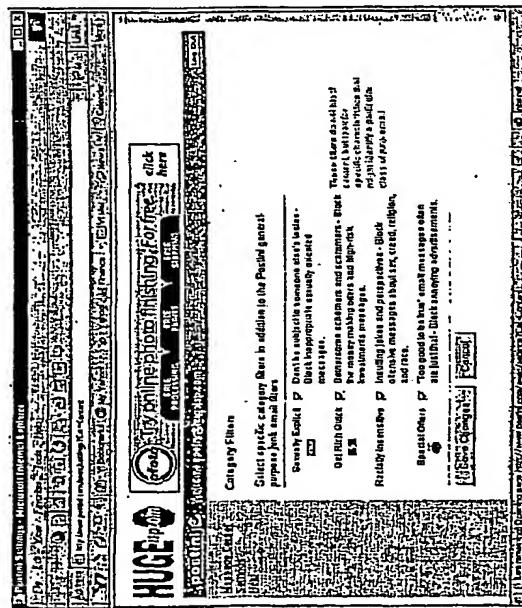


FIGURE 5B



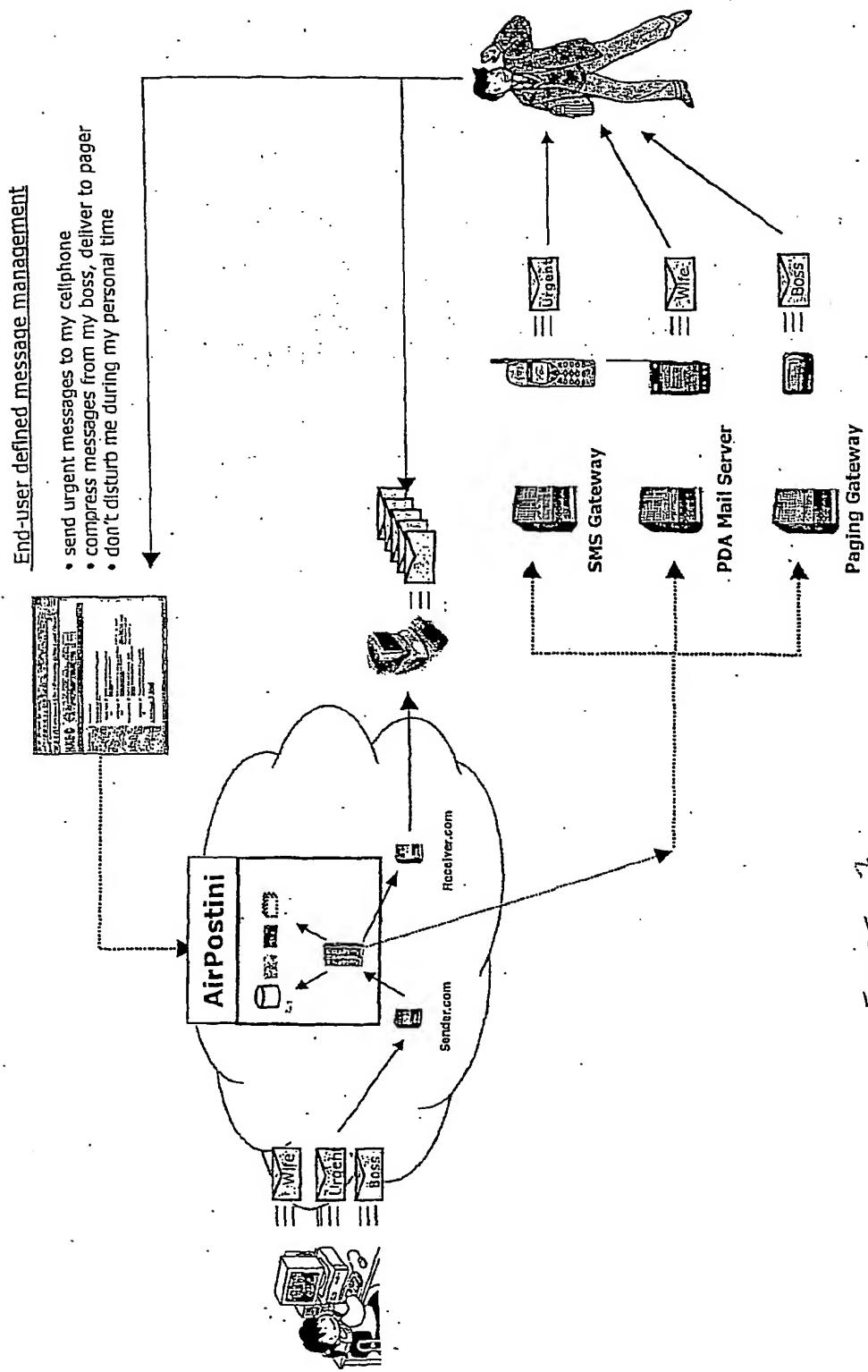
Example: personalized message center



**Example:** personalized configuration

FILED 6

# End User Configuration and Mail Processing



**INTERNATIONAL SEARCH REPORT**

International application No.

PCT/US01/30771

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(7) : H04Q 7/20; H04M 11/10, 3/42; G06F 15/16.  
US CL : 455/3.01, 412-414, 461, 466, 503; 370/270, 912-913; 709/201-203, 206-209, 229, 319.

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 455/3.01, 412-414, 461, 466, 503; 370/270, 912-913; 709/201-203, 206-209, 229, 319.

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
Electronic message system, server, virus, junk mail, filtering, screening.

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6,014,429 A (LAPORTA et al.) 11 January 2000, figs.1-5, columns 7-11, 19	1-7, 9, 11-13, 17-18, 23-30, 32, 35, 37, 42, 44-45, 48-49
—		
Y		8, 10, 14-16, 19-22, 31, 33-34, 36, 38-41, 43, 46-47, 60-63
Y	US 6,075,863 A (KRISHNAN et al.) 13 June 2000, column 5 lines 16-25, abstract.	8, 14-16, 31, 33-34, 43
Y	US 5,742,668 A (PEPE et al.) 21 April 1998, column 5 lines 50-67, column 6 lines 1-2, 11-23, column 26 lines 48-67.	10, 19-22, 36, 38-41, 46, 47
Y	US 5,905,777 A (POLADARE et al) 18 May 1999, columns 11-12.	60-63

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents:		
"A" document defining the general state of the art which is not considered to be of particular relevance	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
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"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&"	document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search

09 January 2002 (09.01.2002)

Date of mailing of the international search report

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Commissioner of Patents and Trademarks  
Box PCT  
Washington, D.C. 20231

Faxsimile No. (703)305-3230

Authorized officer

William Trost

Telephone No. 703 306-0377

*R. For  
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